



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,629	12/30/2003	Elizabeth L. Walker	ESCI-106US	7514
23122	7590	08/23/2007		
RATNERPRESTIA			EXAMINER	
P O BOX 980			ZHENG, LOIS L	
VALLEY FORGE, PA 19482-0980			ART UNIT	PAPER NUMBER
			1742	
			MAIL DATE	DELIVERY MODE
			08/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/748,629	<b>Applicant(s)</b> WALKER ET AL.	
	<b>Examiner</b> Lois Zheng	<b>Art Unit</b> 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 2-4,6-13 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) 8-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4,6,7,11-13 and 15-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 June 2007 has been entered.

### ***Status of Claims***

2. Claims 2-4, 6-7 and 11-13 are amended in view of applicant's amendment filed 16 May 2007. Claims 1, 5 and 14 are canceled in view of applicant's amendment. New claims 15-19 are added. Claims 8-10 remain withdrawn from consideration. Therefore, claims 2-4, 6-7, 11-13 and 15-19 are currently under examination.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 1742

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-3, 6 and 11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lapluye et al. US 5,156,892(Lapluye).

Lapluye teaches applying a corrosion inhibiting solution to metal surfaces to form a protective coating(col. 1 lines 6-9 and col. 1 line 64 – col. 2 line 6). To test the effectiveness of the protective coating, Lapluye further teaches exposing treated and untreated metal surfaces to an atmosphere containing hydrogen sulfide and observe for metal surface color change(col. 3 lines 15-17). According to Lapluye, the untreated copper plate changes color entirely after 1 minute and the treated copper plate starts to change color after 132 minutes(col. 3 lines 21-23). Lapluye further teaches that the metal surfaces are first scoured by a treatment with chromic acid and rinsed with tap water and distilled water prior to the surface treatment(col. 2 lines 54-57).

Regarding instant claims 2-3, 6 and 11, even though Lapluye does not explicitly teach that the untreated copper plate is cleaned and rinsed prior to being exposed to hydrogen sulfide, the examiner finds that the cleaning and the rinsing of the untreated copper plate to be inherently taking place in the testing process of Lapluye in order for the testing of treated and untreated copper surfaces to be carried out on equal footing and with more validity and accuracy. Or alternatively, one of ordinary skill in the art would have found it obvious to have also cleaned and rinsed the untreated copper surface prior to exposing it to hydrogen sulfide test in order for the testing of treated and

untreated copper surfaces to be carried out on equal footing and with more validity and accuracy.

Therefore, the scouring of metal surface with chromic acid prior to surface treatment as taught by Lapluye reads on the claimed step of subjecting copper surface to a cleaning solution containing a corrosion inhibitor. Lapluye further teaches the claimed rinsing of copper surface. The testing step of exposing untreated copper surface to hydrogen sulfide containing atmosphere as taught by Lapluye reads on the claimed step of exposing the cleaned copper surface to an indicating reactant(i.e. hydrogen sulfide) that reacts with the copper surface to cause a visible color change within a predetermined period of time(i.e. 1 minute) to indicate the absence of corrosion inhibitor on the copper surface and to not cause a visible color change within a predetermined period of time to indicate the presence of corrosion inhibitor on the copper surface. In addition, the copper plate as taught by Lapluye reads on the claimed copper surface or copper coupon or test piece.

6. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lapluye et al. US 5,156,892(Lapluye).

The teachings of Lapluye are discussed in paragraph 5 above.

Regarding claims 12-13, the untreated copper plate being exposed to hydrogen sulfide gas as taught by Lapluye reads on the claimed sacrificial copper couple or test piece as recited in claim 12. In addition, even though Lapluye does not explicitly teach the cleaning of a group or a batch of copper coupons or test pieces, one of ordinary skill in the art would have found it obvious to have cleaning and rinsed all copper pieces

used in the test(i.e. see example 7) of Lapluye together in a group or a batch prior to subjecting some of them to surface treatment and hydrogen sulfide gas exposure in order to save time and cost associated with cleaning metal pieces individually.

Furthermore, Lapluye teaches subjecting an untreated copper plate to exposure of hydrogen sulfide, the examiner concludes that the claimed removing the sacrificial copper coupon or test piece from the group or batch of copper pieces to be also taking place in the process of Lapluye.

7. Claims 4, 7 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lapluye in view of Tadashi et al. JP 59-083913(Tadashi).

The teachings of Lapluye are discussed in paragraphs 5-6 above. However, Lapluye does not teach how the hydrogen sulfide gas is formed.

Tadashi teaches a tool for generating hydrogen sulfide(title). Tadashi further teaches that its hydrogen sulfide generator reacts acetic acid with sodium sulfide to produce hydrogen sulfide(abstract). In addition, Tadashi does not appear to have a temperature requirement for the reaction between acetic acid and sodium sulfide to occur.

Regarding claims 4, 7 and 15-18, it would have been obvious to one of ordinary skill in the art to have incorporated the hydrogen sulfide generator of Tadashi into the process of Lapluye in order to provide sufficient hydrogen sulfide gas to the process of Lapluye to achieve proper corrosion inhibitor testing. In addition, since Tadashi does not have specific temperature requirement for the reaction between acetic acid and sodium sulfide, the examiner concludes, based on the broadest reasonable

interpretation, that the reaction of acetic acid and sodium sulfide as taught by Lapluye in view of Tadashi may occur at room temperature as claimed. Furthermore, even though Lapluye in view of Tadashi do not explicitly teach the claimed aqueous solution of sodium sulfide, one of ordinary skill in the art would have found the claimed sodium sulfide in deionized water obvious since deionized water is a popular solvent used in chemical reactions due to high quality of the water and the absence of impurities.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lapluye in view of Slyke US 3,819,817(Slyke).

The teachings of Lapluye are discussed in paragraphs 5-6 above.

However, Lapluye does not explicitly teach the claimed formation of hydrogen sulfide by contacting the claimed citric, ascorbic, hydrochloric or sulfuric acid with an aqueous solution of sodium sulfide.

Slyke teaches a process to produce hydrogen sulfide wherein sulfuric acid is added to sodium sulfide to liberate hydrogen sulfide from sodium sulfide(col. 3 lines 23-56).

Therefore, one of ordinary skill in the art would have found it obvious to incorporate the hydrogen sulfide synthesis method as taught by Slyke into the process of Lapluye in order to produce hydrogen sulfide free of carbon dioxide as taught by Slyke(col. 1 lines 21-23).

In addition, even though Slyke teaches that sodium sulfide in solids is discharged to the reaction chamber(col. 5 lines 44-45), Slyke also teaches that water is discharged into the reaction chamber as well(col. 5 lines 56-59). Therefore, the examiner

determines that the sulfuric acid is added to an aqueous solution of sodium sulfide as claimed.

### ***Response to Arguments***

9. Applicant's arguments filed 16 May 2007 have been fully considered but they are not persuasive.

In the remarks, applicant argues that Lapluye does not teach the claimed visible color change within a predetermined time to show complete removal of any residual corrosion inhibitor on the copper surface after cleaning. Instead, Lapluye teaches No visible color change within a predetermined time to show retention of corrosion inhibitor.

Lapluye teaches the concept of treating a copper surface with hydrogen sulfide gas to test the presence or the absence of a corrosion inhibitor on the copper surface. Color change or the lack thereof within a predetermined time period on copper surface due to the absence or presence of corrosion inhibitor is known in view of Lapluye. One of ordinary skill in the art would have known to use the hydrogen sulfide treatment test method as taught by Lapluye to indicate the presence or absence of a corrosion inhibitor with expected success in view of Lapluye's teaching. Therefore, the examiner does not consider applicant's argument persuasive.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LLZ

ROY KING  
SUPERVISORY PATENT EXAMINER  
TELEPHONE